

Computer-Aided Language Sampling and Analysis: Implications for Best Practices in
Speech-Language Pathology

An Honors Thesis (HONRS 499)

by

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ABSTRACT

Language sampling and analysis (LSA) is crucial in the assessment and treatment of language abilities and disorders. This paper examines the benefits, as cited in the current literature, of LSA and computer-aided language sampling and analysis (CLSA), specifically Systematic Analysis of Language Transcripts (SALT, Version 9; Miller & Iglesias, 2012), and the potential impact it can have on language assessment and treatment. This paper presents a proposed survey to evaluate the use of computer-aided language sampling and analysis (CLSA) in Speech-Language Pathology (SLP) clinical practice. The proposed survey is designed to assess: a) current knowledge of CLSA and LSA, b) training with CLSA and LSA, c) current and potential use of CLSA and LSA d) perceptions of LSA in regards to state educational standards, and e) perceptions of barriers related to CLSA.

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INTRODUCTION

Speech-language pathology (SLP) is a relatively young field, and as such has the potential to grow alongside current technological advances. Speech-language pathologists (SLPs) strive to develop the most innovative and relevant treatment strategies to serve their clients; with the advent of computer-based assessment tools, this process can be made more efficient. Computer-aided language sampling and analysis (CLSA) is a form of computer-based assessment that provides a platform to analyze language transcripts for specific language characteristics.

Language abilities are required for effective communication in structured and non-structured contexts. In order to fully explore the potential of CLSA, it is important to understand language sampling and analysis (LSA). Standardized tests that measure language abilities have a limited range of assessment; they often evaluate only one or two aspects of language (i.e., semantics, syntax, etc.). Comparatively, criterion-referenced language assessments, such as LSA, examine multiple aspects of language abilities simultaneously. Within a criterion-referenced assessment, a clinician assesses how a client functions in a natural setting. Evaluation in a realistic context provides a sample that is as authentic to typical conversation as possible. Because standardized testing does not reflect everyday use of language, but rather isolated utterances, it is imperative that SLPs assess a client's language in actual use.

LSA requires SLPs to collect, transcribe, and analyze language. The SLP must engage a client in a setting that is conducive to recording a robust sample of the client's language. LSA engages the client through play, conversation, narrative retell, and self-conducted narratives. The time it takes to collect a sample may range from 5 to 20 minutes, depending on how quickly a

client produces 50 separate chains of uninterrupted speech, or utterances. The SLP must transcribe the sample into a written format, and analyze the sample for certain language features (i.e. plurals, pronouns, prepositions, nouns, etc.). Through anecdotal experience, this process can range from 30 minutes to an hour, depending on the length of the sample and SLP familiarity with the process. This form of assessment can be time consuming and labor-intensive. When SLPs are faced with large caseloads and time constraints, LSA may possibly become less of a priority, despite its beneficial properties regarding evaluation of language in a natural context. Benefits of using LSA include assessing a client in a context that is similar to his or her natural environment and obtaining contextual data regarding a client's typical state of language. LSA includes both the content and context of language use, which aids in the development of language goals (Owens, 2004, p. 118).

CLSA is a form of LSA that facilitates the investigation of the content and context of language use. CLSA programs are designed to analyze language and compare data regarding specific language abilities (ie, mean length of utterance, mazes, etc.). These programs compare samples from atypical populations of children and adolescents to samples of their typical counterparts. The population comparisons assist the diagnosis of clients with disordered language. With the development of CLSA programs, LSA may be more manageable to clinicians who benefit from such assessments. Therefore, it is important for SLPs to understand the benefits of LSA and CLSA and the impact of this assessment tool in diagnostic and clinical practice.

As LSA benefits are supported by empirical evidence, SLPs can employ the use of LSA to provide effective treatment (Brown, 1973; Templin, 1957; Peña et al., 2006). Although much of LSA literature has explained why LSA and CLSA are important within the diagnosis and

treatment processes, SLPs' perceptions, use, and knowledge base regarding LSA and CLSA have not been examined within recent years (Kemp & Klee, 1997). The profession of SLP supports evidence-based practices (EBP), which requires an integration of research evidence with clinical expertise and patient/parent perspectives to provide the most effective forms of treatment. In order to provide successful treatment, an investigation of current practices and perceptions of LSA and CLSA is necessary. Expanding the current knowledge base regarding LSA and CLSA practices requires a comprehensive survey examining SLP knowledge base, perceptions, and frequency of use of LSA and CLSA will be developed. Additionally, this survey will address a much-needed area of inquiry by examining variables related to possible barriers with CLSA, and how these barriers are to be addressed. This proposed study is important because it will help the profession of SLP collect clinical expertise/expert opinions and scientific data regarding LSA and CLSA practices.

Review of Literature

The Importance and Application of Language Sampling and Analysis

Numerous researchers have investigated the benefits of LSA and how they apply to clinical practice (Brown, 1973; Templin, 1957; Peña, et al., 2006). Chase and Johnston (2013) found that LSA provides SLPs with benefits that standardized assessments lack, such as removing the need for "test-taking" abilities. There are occurrences when a clinician may be unable to find a standardized instrument that is culturally or linguistically appropriate for clients. Being a self-designed and customizable form of assessment, LSA supports a more extensive inspection of language to meet the needs of diverse language clients (Hux et al., 1993; Chase & Johnston, 2013; Peña, et al., 2006; Gallagher, 1983). With LSA, an SLP can modify elicitation

strategies for the client's needs in order to obtain a representative language sample. For example, an SLP can use a computerized tablet application to elicit a narrative from a child with autism, who may struggle pragmatically with creating a spontaneous conversational sample. The flexibility of LSA as a criterion-referenced measure enables a clinician to execute meaningful treatment that accurately addresses the needs of a client (Heilmann et al., 2010; Robinson, 2012). LSA is also a repeatable task and can be a measurement of response to intervention (RTI) (Miller, Andriacchi, & Nockerts, 2011). Several language samples can be taken throughout the course of treatment, allowing SLPs to track progress and modify treatment accordingly.

LSA comprehensively investigates communication abilities in a naturalistic setting as opposed to a strict environment associated with standardized testing (Hux, et al., 1993; Price, Hendricks, & Cook, 2010). This is a benefit of LSA because the clinician can observe and analyze a client's abilities without the restrictions of a formal test. Blau, Lahey, and Oleksiuk-Valez (1984), concluded that when compared to the Carrow Elicited Language Inventory (CELI; Carrow, 1974a), LSA leads to the development of "more specific goals, providing both content and context in which the goals should be taught" (p. 79). Robinson (2012) examined the use of oral narrative retell and whether total-word-scores, C-units, or a story structure evaluation guide, would measure the oral narrative scores of first graders. Robinson determined that the use of LSA was the most effective measure, compared to the standardized measure, for distinguishing between children with language disorders and typical students.

LSA and Common Core State Standards

As LSA is an effective and flexible form of assessing language in children, it can be used in the school setting. Clinicians who treat children in the schools are faced with increasing

pressure to address language abilities more directly. The Common Core State Standards Initiative (CCSS) has begun to impact the focus of SLP intervention on language abilities within the schools (Dodd, 2014). The CCSS mandates specific learning outcomes for students in kindergarten through 12th grade. The communication abilities that are required of students by the CCSS are deeply rooted in naturalistic language abilities. CCSS requires students to problem solve, work conversationally in groups, and use metacognitive skills throughout all academic endeavors. Many of these standards involve semantics, syntax, and pragmatics, which are language based skills used to communicate. LSA comprehensively measures these language abilities, leading to a more effective evaluation of current abilities and RTI (Dodd, 2014; Robinson, 2012).

The naturalistic approach of LSA allows the clinician to obtain samples within the classroom, during playtime, or in a group session. The language samples obtained in these settings are “snapshot(s) of (a) speaker’s typical oral language” (Miller et al., 2011, p. 5) and can indicate strengths and weakness related to the CCSS. By focusing on language assessment that is representational of a student’s abilities, clinicians will be better equipped to evaluate students in terms of the CCSS. Therefore, it appears as though LSA will become increasingly prevalent when evaluating language abilities in the schools (Robinson, 2012).

Computer-Aided Language Sampling and Analysis Benefits for SLP

As LSA is a beneficial assessment tool, researchers and developers have designed CLSA programs to make LSA more accessible. In the past 20 years, there have been several CLSA programs designed to increase the efficiency of performing LSA. Several of the current CLSA programs available include Computerized Profiling (CP; Long, Fey, and Channell, 2000),

Computerized Language ANalysis (CLAN; Spekter, 2015), Parrot Easy Language Sample Analysis (PELSA; Weiner, 1986), and Systematic Analysis of Language Transcripts (SALT, Version 9; Miller & Iglesias, 2012). PELSA, CP, CLAN and SALT utilize specific coding procedures to input language transcripts. These programs analyze the language data and provide the user with a data report of language characteristic performance (i.e. verbs, pronouns, contractions, etc.).

Price, Hendricks, and Cook (2010) indicated several benefits associated with CLSA, including reduction of time and effort of analyses, increased accuracy of analyses, and increased time to interpret results. Price et al. (2010) noted that in addition to evaluating current language abilities, CLSA supports an evaluation of a child's RTI because of the quantitative data provided in the analysis of the language sample. Heilmann, et al. (2010), indicated that CLSA has a similar time commitment to traditional LSA in certain aspects of the analyses. Heilmann, et al. (2010) noted that CLSA has an added benefit of simultaneously documenting multiple communication facets of children's language that cannot be captured using standardized assessments exclusively.

An added benefit of CLSA is that it can be used both clinically and in a research setting. Scott and Windsor (2000) used the CLSA program, SALT, to determine whether general language performance measures of naturalistic language samples would distinguish school-age children with and without language learning disabilities (LLD). SALT compared children with LLD and without LLD across 10 different performance measures. It was found that children without LLD significantly outperformed those with LLD in total utterance and total word production. Children with LLD also had a significantly higher error rate within spoken

summaries. The use of the CLSA software, SALT, in this study allowed Scott and Windsor to determine significant differences between children with and without LLD.

SALT can also be used to examine productivity in elicitation methods. Peña et al. (2006) utilized SALT to examine productivity measures of narrative samples elicited from two parallel wordless picture books. These measures included mean length of utterance of words per C-unit, total number of words, number of different words, number of clauses, and number of clauses per C-unit. SALT, in conjunction with an analysis of the narrative components, found that the samples and books were equivalent in total story scores and productivity scores.

SALT Software and Databases

In order to grasp the utility of SALT as a clinical and research tool, it is important to understand the features of the program. SALT's clinical application allows for a clinician to transcribe and analyze a language sample. SALT requires a specific form of coding for language transcripts. Coding conventions are provided in SALT Software documentation, detailing coding requirements such as: transcript format, utterance punctuation, and bound morphemes (Systematic Analysis of Language Transcripts, n.d.). Demographic information is also provided when entering a new transcript to be analyzed. The demographics of the client that must be entered includes: name, gender, date of birth, current age, grade level, ethnicity, and parent education (SALT, Version 9; Miller & Iglesias, 2012). The program also allows the clinician to indicate what type of sampling context (conversation, narration, exposition, or other), subgroup or story used to elicit the sample (*Frog, Where Are You?*, *Pookins Gets Her Way*, etc.), target language of sample (English, Spanish, French, or Other), and which database will be used for comparison (SALT, Version 9; Miller & Iglesias, 2012).

SALT software contains 10 different databases addressing language samples from various forms of elicitation. The five core databases include the Play, Conversation, Narrative Student Selects Story, Narrative Story Retell, and Expository databases. These databases include information on the age ranges, grade levels, and location of children in the samples, as well as how many samples are included in the database (Miller, Andriacchi, & Nockerts, 2011). Each database allows for a clinician to compare an obtained language sample to typically developing children's language abilities (Miller, Andriacchi, & Nockerts, 2011). The Play database consists of 69 samples from preschool and kindergarten children ages 2;8-5;8 years from the Wisconsin area. The Conversation database consists of 584 samples from preschool through third grade, fifth, and seventh grade children ages 2;9-13;3 years from Wisconsin and California. The Narrative Student Selects Story database consists of 330 samples from preschool through third grade, fifth, and seventh grade children ages 5;2-13;3 years from Wisconsin. Collectively, the four sub-databases within the Narrative Story Retell database consist of 500 samples from preschool through sixth grade children ages 4;4-12;8 years from Wisconsin and California. The Expository database consist of 242 samples from fifth through seventh, and ninth grade children ages 10;7-15;9 years from Wisconsin.

Once the demographic information is complete and the language sample is properly coded, SALT software analyzes the sample and provides raw data in the form of a transcript summary and standard measures report for the clinician to evaluate. The raw data includes information on the number of utterances per type (statements, exclamations, etc.), syntax, semantics, discourse, rate, fluency, omissions, and errors (Miller, Andriacchi, & Nockerts, 2011). These reports profile the client's strengths and weaknesses to aid in diagnosis and treatment.

Historical Barriers Associated with LSA

Despite the diagnostic benefits and increasing need for LSA and CLSA, there are several barriers that have historically hindered clinical use of LSA. Kemp and Klee (1997) and Hux et al. (1993) examined SLP practices and found several barriers and trends associated with LSA. According to Hux et al., participants claimed that it was difficult to elicit an authentic and representative language sample; this led to an underutilization of LSA. Though procedural uniformity is not required, a deficit in procedural uniformity for language sampling was also cited as a barrier (Hux et al., 1993). Kemp and Klee (1997) found that 85% of those who do not use LSA indicated that the largest barrier was insufficient time. Of those clinicians who did not use LSA, 40% cited limited computer access as a barrier (Kemp & Klee, 1997). Kemp and Klee also found that only 8% of SLPs surveyed used CLSA, and 6% used SALT. Compared to Kemp and Klee's results, Hux et al. surveyed 239 SLPs and found that only 3% used CLSA in practice. There is value in analyzing previous data in relation to current practice; however continuously updated research is imperative to augment the usage of LSA and CLSA.

Purpose

Currently, the data regarding perceptions and use of LSA is 18 years old (Kemp & Klee, 1997). Unfortunately, there is also no current data regarding SALT use (Chase & Johnston, 2013). Advances in technology and changes in educational policy call for an updated investigation of the perceptions and use of LSA, CLSA, and SALT. An in-depth survey of this information is needed because SLP and CCSS are increasing focus upon language abilities and how to address them in intervention. By examining current practices, professionals in SLP will be able to determine what needs to be addressed regarding LSA and CLSA implementation.

Professionals will be able to focus on fostering the efficient components of CLSA and LSA and strengthening the inefficient components. Examining the perceptions and use of LSA, CLSA, and SALT will help expand SLPs understanding of how language is being assessed clinically and lead to improvement through EBP. In this proposed study, perceptions, practices, and potential barriers regarding LSA and CLSA will be assessed through a survey. Dr. Barry T. Wagner developed this research idea given his personal perceptions of the limited use of SALT in the academic environment. The survey will assess demographics, current knowledge of CLSA and LSA, training in CLSA and LSA, current and potential use of CLSA and LSA, perceptions of LSA in regards to state educational standards, and perceptions of barriers related to CLSA. Based on the results of previous studies regarding LSA perceptions and practices, it is anticipated that results of the survey will reveal a significantly high number of SLPs in favor of LSA, but a significantly low number of SLPs utilizing CLSA due to lack of time, poor knowledge base, and poor accessibility of the measure.

The following research questions will be proposed:

1. What is the current knowledge base of SLPs regarding LSA and CLSA?
2. What perceptions do SLPs manifest about LSA?
3. What perceptions do SLPs manifest about CLSA?
4. Do SLPs perceive barriers associated with the use of CLSA?

Method

Participants

A sample of approximately 200 school-based SLPs will participate in this study. Participants will be recruited from the membership of four state SLP organizations (i.e., Indiana Speech-Language-Hearing Association, Kentucky Speech-Language-Hearing Association, Ohio Speech-Language-Hearing Association, and Illinois Speech-Language-Hearing Association) by email. The participants will range approximately in age from 23 to 80 years. Participants will be asked to participate if they fall under the following criteria: ASHA certified (maintains a certificate of clinical competency in SLP) and currently practicing in a clinical or school setting and treating a school-aged population. Participants who do not meet these criteria will be excluded from the investigation. Participation will be strictly voluntary. The use of volunteers as participants in this study may restrict the generalization of future results. Incentives will not be offered.

Materials

With this study, a survey was developed to measure professional attitudes regarding the use of CLSA. The questions and structure of this survey were developed through examination of current literature, previously conducted surveys, and the CLSA program SALT. Previous studies were considered in the development of this survey to investigate changes in clinical practice since clinicians were last surveyed. Before the completion of the survey tool, a draft was presented to Dr. Barry T. Wagner, an SLP research advisor. Following his principal guidance, comments concerning completeness, relevance, and clarity were also obtained from professionals at the 2014 ASHA Convention. Comments from these professionals were considered in the final

design of the survey. The sole developers for questions in this survey were Wagner and Fair. An examination of content reliability will be conducted after survey data is collected.

Assessment of CLSA in SLP. Participants will be given a 64-item survey to complete. The first 10 items are designed to collect demographic information and are formatted as multiple-choice questions and select all that apply. Ratings will measure current knowledge of CLSA and LSA, training in CLSA and LSA, current and potential use of CLSA and LSA, perceptions of state educational standards, and perceptions of barriers related to CLSA on a 5-point Likert scale (1 = *strongly disagree* and 5 = *strongly agree*). The next 19 items are designed to measure the current knowledge of CLSA and SALT software. Example items include, “CLSA can be used as an effective alternative to traditional standardized testing especially when children cannot perform on structured standardized instruments” and “I am aware that SALT utilizes demographic information, such as age and gender, to compare client’s to a database of age matched peers.” The next six items are designed to measure attitudes toward participants’ undergraduate and graduate academic training with language sampling analysis and CLSA. The next 11 items measure attitudes towards current and potential use of LSA and CLSA. The next six items measure attitudes towards state regulations and Common Core Standards in public schools. The last 11 items measure attitudes towards barriers to the use of CLSA. Scores for individual participants could range from 53 (strongly disagreeing with 53 non-demographic items) to 265 (strongly agreeing with 53 non-demographic items). Please refer to Appendix A to view the complete survey.

Procedure

To maintain confidentiality, the survey will be administered through the online automated delivery system, Qualtrics. Participants will receive an introduction and a link to the survey study being conducted. They will digitally sign an informed consent form, which will be approved by Ball State University's IRB. The form will indicate that (a) the study concerns perceptions regarding various forms of assessment, (b) the members are not required to participate, and (c) if they do participate, they will be able to withdraw from the study at any time without penalty. Surveys will be distributed via email to SLPs that are affiliated with their state SLP organizations. Approximately 500 survey links will be sent out across the selected SLP organization emails. The survey may be taken on any computer, tablet, or cellular device with Internet access. Participants will have three weeks to complete the survey via the online link. One reminder email will be distributed after the survey has been active for two weeks. Incomplete surveys will be disregarded in data analysis and coding. The results will then be collected and analyzed using statistical analysis software, SPSS.

Summary and Conclusions

The hypothetical results of this study include projected CLSA usage, barriers to CLSA use, and the necessity of user-friendly CLSA programs. It is predicted that only a small percentage of school-based SLPs use CLSA in clinical practice. The results are projected to indicate that barriers associated with CLSA will involve time constraints on the SLP, deficient monetary resources, and insufficient training. Increased caseloads and complex transcription processes are believed to be reasons for SLPs to cite insufficient time as a barrier to using CLSA. Several CLSA programs must be purchased (i.e., SALT, PELSA); this monetary element of using CLSA is a projected barrier for school-based SLPs who often have limited funds for purchasing diagnostic equipment. SLPs are required to undergo training in language assessment throughout their education, but it is projected that SLPs believe they have received insufficient training in CLSA. Another hypothetical result is that SLPs perceive the current CLSA programs as difficult to use and implement. It is believed SLPs will indicate that the CLSA programs, specifically SALT, are too complicated and difficult to learn. A hypothetical clinical implication of this study is that CLSA training will be implemented earlier in SLP education to expose SLPs to innovative diagnostic tools.

These hypothetical results will theoretically promote CLSA training and implementation strategies in the coursework of aspiring clinicians. By preemptively exposing students to CLSA, the barrier of insufficient training is lessened; when a clinician is familiar with a program, it is more likely to be used. A related hypothetical implication is the perceived difficulty of the programs. If school-based clinicians find the programs too difficult to navigate, they will not take

advantage of these resources. It is believed that CLSA developers will be incited to reevaluate their programs' user interfaces.

The limitations of this study involve content validity and participant sampling. The current survey tool has not been tested for content validity and reliability. This study will be a volunteer based study; this may limit the generalization of future data. The participant sample is also limited by the survey's scope of dissemination; the survey will be circulated through SLP state organizations in Ohio, Kentucky, Indiana, and Illinois. Because data collection will be limited to this region, the generalization of future data is limited.

As stated before, LSA and CLSA are valuable forms of assessment in language intervention. CLSA programs allow SLPs to spend more time on the evaluation of the language data. By using the CLSA program, SALT, SLPs can evaluate results and compare language samples of atypical students to typically developing students, while providing relevant data concerning language abilities. The benefits of LSA and CLSA have been established, but information regarding current practices is sparse and dated. Therefore, the development of this survey and the data obtained from will aid in the determination of current LSA and CLSA practices in SLP. This information will impact EBP regarding LSA by providing SLPs with an understanding of current trends and potential barriers. By investigating this information, the SLP profession will be able to apply the implications of this data into their daily practice.

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Appendix A

**Assessment of Computer-aided Language Sampling and Analysis (CLSA) in
SLP
(Wagner & Fair, 2015)**

Demographics

1. Please select your primary work setting:
 - a. Preschool
 - b. School
 - c. Clinic
 - d. Private Practice
 - e. Hospital
 - f. Long-Term Health
 - g. University (Clinic)
 - h. Other: _____
2. Please indicate the population(s) that you serve (check all that apply):
 - a. Birth to Three (Age)
 - b. Preschool (Age)
 - c. School (Age)
 - d. Adults
 - e. Geriatric
3. Please indicate your primary certification:
 - a. Speech Language Pathologist (CCC-SLP)
 - b. Audiologist (CCC-A)
 - c. CCC-A & SLP
 - d. State Certification
4. Please indicate your highest level of education:
 - a. Bachelor's Degree
 - b. Master's Degree
 - c. Doctor of Philosophy Degree
 - d. Clinical Doctoral Degree
5. Please indicate the institution from which you earned your UNDERGRADUATE degree:
 - a.

- 6. Please indicate the institution from which you earned your GRADUATE degree:
 - a.
- 7. Please indicate your primary employment status within the last 12 months:
 - a. PRN
 - b. Part Time
 - c. Full Time
 - d. Not Currently practicing
- 8. Please indicate the amount of years you have been practicing:
 - a. 0-5 years
 - b. 5-10 years
 - c. 10-15 years
 - d. 15+ years
- 9. Please indicate the size of your UNDERGRADUATE Language Disorders course:
 - a. 10-15 students
 - b. 15-20 students
 - c. 20-30 students
 - d. 30+ students
- 10. Please indicate the size of your GRADUATE Language Disorders course:
 - a. 5-10 students
 - b. 10-15 students
 - c. 15-20 students
 - d. 20-25 students
 - e. 25+ students

Current Knowledge of Computer-aided Language Sampling and Analysis (CLSA)

Please use the provided scale to indicate the level to which you agree with the following statements:

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5
11. CLSA can be used to diagnose children with expressive language disorders				
1	2	3	4	5

12. CLSA can be used to monitor children's progress after being enrolled in expressive language treatment.

1 2 3 4 5

13. CLSA can be used as an effective alternative to traditional standardized testing especially when children cannot perform on structured standardized instruments.

1 2 3 4 5

14. CLSA can be used as a means of describing children's expressive language abilities in a variety of real-life communicative contexts (e.g., conversations, narratives).

1 2 3 4 5

15. In regards to the use of the software, Systematic Analysis of Language Transcripts (SALT) (Miller and Iglesias, 2008), I am both knowledgeable and competent.

1 2 3 4 5

16. In regards to the use of the software, Computerized Profiling (CP) (Long, Fey, and Channell, 2000), I am both knowledgeable and competent.

1 2 3 4 5

17. In regards to the use of the software, Computerized Language ANalysis (CLAN) (Spektor, 2015), I am both knowledgeable and competent.

1 2 3 4 5

18. In regards to the use of the software, Parrot Easy Language Sample Analysis (PELSA) (Weiner, 1986), I am both knowledgeable and competent.

1 2 3 4 5

The following questions are in reference to or involving your PRIOR knowledge of the CLSA software, Systematic Analysis of Language Transcripts (SALT) (Miller and Iglesias, 2008).

Please use the provided scale to indicate the level to which you agree with the following statements:

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1	2	3	4	5

19. I am aware that SALT uses a comprehensive narrative database to determine the presence of an expressive language disorder.

1 2 3 4 5

20. I am aware that SALT utilizes demographic information, such as age and gender, to compare client's to a database of age matched peers.

1 2 3 4 5

21. I am aware that SALT provides video training modules to incorporate SALT into clinical and research practice.

1 2 3 4 5

22. I am aware that SALT uses specific language sample elicitation protocols, transcription formats, and computer analyses to maintain consistency across language samples.

1 2 3 4 5

23. I am aware that the language and age range of the database participants in the SALT databases vary according to the sampling context.

1 2 3 4 5

24. I am aware that SALT includes separate databases of the sampling contexts: play, conversation, narrative (student selects story), narrative story retell, and expository.

1 2 3 4 5

25. I am aware that SALT uses specialized transcription conventions when transcribing a language sample.

1 2 3 4 5

26. I am aware that SALT provides a summary of transcription conventions within the training information.

1 2 3 4 5

27. I am aware that, during transcription of a language sample, the punctuation symbol for an intonation prompt is a tilde (~). (Example: E And then you will~)

1 2 3 4 5

28. I am aware that, during the transcription of a language sample, plural words are entered as the root word's conventional spelling followed by a slash (/) and then the bound morpheme.

1 2 3 4 5

29. I am aware that, during the transcription of a language sample, there are specific spelling conventions for filled pause words, yes words, no words, and concatenates. (Example: BETCHA, GONNA, GOTTA)

1 2 3 4 5

Undergraduate and Graduate Academic Training with Language Sampling Analysis (LSA) and CLSA

Please use the provided scale to indicate the level to which you agree with the following statements:

Strongly Disagree Disagree Neither Agree Agree Strongly Agree
Nor Disagree

1 2 3 4 5

30. My undergraduate program included LSA and/or CLSA training in its SLP curriculum.

1 2 3 4 5

31. My undergraduate program provided 15 or more classroom instruction hours on LSA and/or CLSA.

1 2 3 4 5

32. My undergraduate program provided adequate clinical lab experiences on LSA and/or CLSA.

1 2 3 4 5

33. My graduate program included LSA and/or CLSA training in its SLP curriculum.

1 2 3 4 5

34. My graduate program provided 15 or more classroom instruction hours on LSA and/or CLSA.

1 2 3 4 5

35. My graduate program provided adequate clinical lab experiences on LSA and/or CLSA.

1 2 3 4 5

36. My graduate program incorporated intensive CLSA training into its diagnostics courses.

1 2 3 4 5

Current & Potential Use of LSA and CLSA

Please use the provided scale to indicate the level to which you agree with the following statements:

Strongly Disagree Disagree Neither Agree Agree Strongly Agree
Nor Disagree

1 2 3 4 5

37. I currently use LSA in my clinical practice.

1 2 3 4 5

38. I currently use standard methods of elicitation in my language sampling techniques.

1 2 3 4 5

39. I currently use a standard method of analysis in my language sampling techniques.

1 2 3 4 5

40. I currently use a self-designed, nonstandard language sampling procedure.

1 2 3 4 5

41. I currently use real-time hand-transcription without the use of a tape or digital recorder.

1 2 3 4 5

42. I currently use a CLSA procedure in clinical practice.

1 2 3 4 5

43. I currently use SALT (Miller and Iglesias, 2008) software in clinical practice.

1 2 3 4 5

44. My employer encourages LSA and CLSA during my evaluations.

1 2 3 4 5

45. I would like to increase my use of LSA and CLSA in my current practice.

1 2 3 4 5

46. I am currently researching new ways to incorporate LSA and CLSA into my practice.

1 2 3 4 5

47. I would prefer for an outside party to transcribe and analyze my language samples.

1 2 3 4 5

State Regulations and Common Core Standards in the Public School

Please use the provided scale to indicate the level to which you agree with the following statements:

Strongly Disagree Disagree Neither Agree Agree Strongly Agree
Nor Disagree

1 2 3 4 5

48. I am required, by state regulations, to address language skills in reference to the Common Core State Standards (CCSS).

1 2 3 4 5

49. I am required, by state regulations, to perform LSA on all language disorder clients.

1 2 3 4 5

50. I am aware that the Language Standards within the CCSS include language skills such as grammar, syntax, vocabulary, conversation, and sentence structure.

1 2 3 4 5

51. I am aware that the Listening and Speaking Standards within the CCSS address language skills such as discourse, retelling, summarizing, and pragmatics.

1 2 3 4 5

52. I am aware that the Reading Standards within the CCSS address language skills such as narratives, questioning, comprehension, and evaluating.

1 2 3 4 5

53. I utilize LSA as an integral part in determining how I need to integrate CCSS into my clients' therapy goals.

1 2 3 4 5

Barriers to Use of CLSA

Please use the provided scale to indicate the level to which you agree with the following statements:

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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1	2	3	4	5
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54. I do not use CLSA because of a lack of time in the clinical/school setting.

1	2	3	4	5
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55. I do not use CLSA because of a lack of computer resources in the clinical/school setting.

1	2	3	4	5
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56. I do not use CLSA because of a lack of training and expertise.

1	2	3	4	5
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57. I do not use CLSA because it is too complicated and difficult to learn.

1	2	3	4	5
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58. I do not use CLSA because of financial constraints and budget restraints.

1	2	3	4	5
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59. I do not use CLSA because I believe it is not necessary; I can complete a language sample analysis by hand just as efficiently.

1	2	3	4	5
---	---	---	---	---

60. SALT (Miller and Iglesias, 2008) is an easy to use and efficient program.

1	2	3	4	5
---	---	---	---	---

61. I would benefit from formal training with a CLSA program.

1	2	3	4	5
---	---	---	---	---

62. If trained in CLSA, I would implement more language sampling into my clinical/school setting practice.

1	2	3	4	5
---	---	---	---	---

63. Please indicate specific barriers or concerns you may have with implementing CLSA into your clinical/school setting practice.
- a.
64. Please indicate what would help you implement CLSA, if you are not currently utilizing CLSA software.
- b.